



102286-413.ST25

SEQUENCE LISTING

<110> Jakobsen, Brent Karsten
Gao, George Fu
Gerth, Ulrich Conrad
Sewell, Andrew Kelvin

<120> CD8 AS AN INHIBITOR OF THE CELLULAR IMMUNE SYSTEM

<130> 102286.413

<140> US 09/560,494

<141> 2000-04-28

<150> PCT/GB98/03235

<151> 1998-10-28

<150> GB 9722779.7

<151> 1997-10-28

<160> 32

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 1

gactgagtcg cggccgctgc caccatggcc ttaccagtga ccgccttg 48

<210> 2

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 2

tattcgactg gatccttata cgtatctcgc cgaaaggctg gg 42

<210> 3

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 3

ggaattccat atgagccagt tccgggtgtc gccgctggat cg 42

<210> 4

<211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic DNA primer

<400> 4
 cgcgcatccc tatgcgcccc ccgctggccg gctcgctctt gggcgaggg acag 54

<210> 5
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic DNA primer

<400> 5
 caccgcgaat tcggatccta agcgggtcta caagcttcgg gcttcgctgg caggaagacc 60

<210> 6
 <211> 59
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic DNA primer

<400> 6
 caccgcgaat tcggatccta agcgggtcta caagcttctg gcgtcgtgg gggcttcgc 59

<210> 7
 <211> 60
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic DNA primer

<400> 7
 caccgcgaat tcggatccta agcgggtcta caagcttcgg gcttcgctgg caggaagacc 60

<210> 8
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic DNA primer

<400> 8
 gtggcaagct tggatcctat ggcgtcgtgg tgggcttcgc tg 42

<210> 9
 <211> 42
 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 9

ggaattccat atgagtcaat ttcgtgtatc accgctggat cg

42

<210> 10

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 10

acatacccat gggctctcac tccatgaggt atttc

35

<210> 11

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 11

acatacaagc ttacggctcc catcttaagg tgaggggctt ggg

43

<210> 12

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> HLA-A2 Pol-restricted CTL line specific peptide

<400> 12

Ile Leu Lys Glu Pro Val His Gly Val

1

5

<210> 13

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> HLA-A2 Pol-restricted CTL line specific peptide

<400> 13

Ser Leu Tyr Asn Thr Val Ala Thr Leu

1

5

<210> 14

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> HLA-A2 Pol-restricted CTL line specific peptide

<400> 14

Val Ile Tyr Gln Tyr Met Asp Asp Leu

1

5

<210> 15

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 15

ctgtccaacc cgacgtcggg cagctcgtgg ctcttccagc cg

42

<210> 16

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 16

cggctggaag agccacgagc tgcccgcgacgt cgggttggac ag

42

<210> 17

<211> 99

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic DNA primer

<400> 17

gggggaagct taatgccatt cgattttctg agcttcaaaa atatcggttca gaccaccacc 60

ggatcctggc gtcgtggtgg gcttcgctgg caggaagac

99

<210> 18

<211> 18

<212> PRT

<213> Artificial Sequence

<220>

<223> CD8 alpha polypeptide

<400> 18

Gly Ser Gly Gly Gly Leu Asn Asp Ile Phe Glu Ala Gln Lys Ile Glu

1

5

10

15

Trp His

<210> 19
 <211> 63
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic DNA primer

<400> 19
 gaggaggagc atatgaaacc acaagcacct gaactacgaa tctttccaaa gaaaatggac 60
 gcc 63

<210> 20
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic DNA primer

<400> 20
 ggggagggaa gcttacttgg tagtagtaga gttcac 36

<210> 21
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> HLA-A2-flu

<400> 21
 Gly Ile Leu Gly Phe Val Phe Thr Leu
 1 5

<210> 22
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> peptide epitope

<400> 22
 Lys Ala Val Tyr Asn Phe Ala Thr Cys
 1 5

<210> 23
 <211> 366
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic DNA construct encoding part of the
 extracellular domain of human CD8 alpha

<221> CDS

<222> (1)...(366)

<400> 23

```

atg agt caa ttt cgt gta tca ccg ctg gat cgg acc tgg aac ctg ggc 48
Met Ser Gln Phe Arg Val Ser Pro Leu Asp Arg Thr Trp Asn Leu Gly
  1           5           10           15

gag aca gtg gag ctg aag tgc cag gtg ctg ctg tcc aac ccg acg tcg 96
Glu Thr Val Glu Leu Lys Cys Gln Val Leu Leu Ser Asn Pro Thr Ser
          20           25           30

ggc tgc tcg tgg ctc ttc cag ccg cgc ggc gcc gcc gcc agt ccc acc 144
Gly Cys Ser Trp Leu Phe Gln Pro Arg Gly Ala Ala Ala Ser Pro Thr
          35           40           45

ttc ctc cta tac ctc tcc caa aac aag ccc aag gcg gcc gag ggg ctg 192
Phe Leu Leu Tyr Leu Ser Gln Asn Lys Pro Lys Ala Ala Glu Gly Leu
          50           55           60

gac acc cag cgg ttc tcg ggc aag agg ttg ggg gac acc ttc gtc ctc 240
Asp Thr Gln Arg Phe Ser Gly Lys Arg Leu Gly Asp Thr Phe Val Leu
        65           70           75           80

acc ctg agc gac ttc cgc cga gag aac gag ggc tac tat ttc tgc tcg 288
Thr Leu Ser Asp Phe Arg Arg Glu Asn Glu Gly Tyr Tyr Phe Cys Ser
          85           90           95

gcc ctg agc aac tcc atc atg tac ttc agc cac ttc gtg ccg gtc ttc 336
Ala Leu Ser Asn Ser Ile Met Tyr Phe Ser His Phe Val Pro Val Phe
          100          105          110

ctg cca gcg aag ccc acc acg acg cca tag 366
Leu Pro Ala Lys Pro Thr Thr Thr Pro *
          115          120

```

<210> 24

<211> 121

<212> PRT

<213> Artificial Sequence

<220>

<223> an amino acid construct encoding part of the
extracellular domain of human CD8 alpha

<400> 24

```

Met Ser Gln Phe Arg Val Ser Pro Leu Asp Arg Thr Trp Asn Leu Gly
  1           5           10           15
Glu Thr Val Glu Leu Lys Cys Gln Val Leu Leu Ser Asn Pro Thr Ser
          20           25           30
Gly Cys Ser Trp Leu Phe Gln Pro Arg Gly Ala Ala Ala Ser Pro Thr
          35           40           45
Phe Leu Leu Tyr Leu Ser Gln Asn Lys Pro Lys Ala Ala Glu Gly Leu
          50           55           60
Asp Thr Gln Arg Phe Ser Gly Lys Arg Leu Gly Asp Thr Phe Val Leu
          65           70           75           80
Thr Leu Ser Asp Phe Arg Arg Glu Asn Glu Gly Tyr Tyr Phe Cys Ser
          85           90           95
Ala Leu Ser Asn Ser Ile Met Tyr Phe Ser His Phe Val Pro Val Phe

```

100 105 110
 Leu Pro Ala Lys Pro Thr Thr Thr Pro
 115 120

<210> 25
 <211> 400
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> a synthetic DNA construct encoding part of the
 extracellular domain of murine CD8 alpha

<221> CDS
 <222> (4)...(396)

<400> 25
 cat atg aaa cca caa gca cct gaa cta cga atc ttt cca aag aaa atg 48
 Met Lys Pro Gln Ala Pro Glu Leu Arg Ile Phe Pro Lys Lys Met
 1 5 10 15

 gac gcc gaa ctt ggt cag aag gtg gac ctg gta tgt gaa gtg ttg ggg 96
 Asp Ala Glu Leu Gly Gln Lys Val Asp Leu Val Cys Glu Val Leu Gly
 20 25 30

 tcc gtt tcg caa gga tgc tct tgg ctc ttc cag aac tcc agc tcc aaa 144
 Ser Val Ser Gln Gly Cys Ser Trp Leu Phe Gln Asn Ser Ser Ser Lys
 35 40 45

 ctc ccc cag ccc acc ttc gtt gtc tat atg gct tca tcc cac aac aag 192
 Leu Pro Gln Pro Thr Phe Val Val Tyr Met Ala Ser Ser His Asn Lys
 50 55 60

 ata acg tgg gac gag aag ctg aat tcg tcg aaa ctg ttt tct gcc atg 240
 Ile Thr Trp Asp Glu Lys Leu Asn Ser Ser Lys Leu Phe Ser Ala Met
 65 70 75

 agg gac acg aat aat aag tac gtt ctc acc ctg aac aag ttc agc aag 288
 Arg Asp Thr Asn Asn Lys Tyr Val Leu Thr Leu Asn Lys Phe Ser Lys
 80 85 90 95

 gaa aac gaa ggc tac tat ttc tgc tca gtc atc agc aac tcg gtg atg 336
 Glu Asn Glu Gly Tyr Tyr Phe Cys Ser Val Ile Ser Asn Ser Val Met
 100 105 110

 tac ttc agt tct gtc gtg cca gtc ctt cag aaa gtg aac tct act act 384
 Tyr Phe Ser Ser Val Val Pro Val Leu Gln Lys Val Asn Ser Thr Thr
 115 120 125

 acc aag cca taa gctt 400
 Thr Lys Pro *
 130

<210> 26
 <211> 130
 <212> PRT
 <213> Artificial Sequence

<220>

<223> an amino acid construct encoding part of the
extracellular domain of murine CD8 alpha

<400> 26

```

Met Lys Pro Gln Ala Pro Glu Leu Arg Ile Phe Pro Lys Lys Met Asp
 1           5           10           15
Ala Glu Leu Gly Gln Lys Val Asp Leu Val Cys Glu Val Leu Gly Ser
          20           25           30
Val Ser Gln Gly Cys Ser Trp Leu Phe Gln Asn Ser Ser Ser Lys Leu
          35           40           45
Pro Gln Pro Thr Phe Val Val Tyr Met Ala Ser Ser His Asn Lys Ile
          50           55           60
Thr Trp Asp Glu Lys Leu Asn Ser Ser Lys Leu Phe Ser Ala Met Arg
65          70          75          80
Asp Thr Asn Asn Lys Tyr Val Leu Thr Leu Asn Lys Phe Ser Lys Glu
          85          90          95
Asn Glu Gly Tyr Tyr Phe Cys Ser Val Ile Ser Asn Ser Val Met Tyr
          100         105         110
Phe Ser Ser Val Val Pro Val Leu Gln Lys Val Asn Ser Thr Thr Thr
          115         120         125
Lys Pro
    130

```

<210> 27

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> CD8 protein

<400> 27

```

Leu Leu Leu His Ala Ala Arg Pro
 1           5

```

<210> 28

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> CD8 protein

<400> 28

```

Ala Pro Arg Pro Pro Thr Pro Ala
 1           5

```

<210> 29

<211> 708

<212> DNA

<213> Homo sapien

<220>

<221> misc_feature

<222> (1)...(708)

<223> Human CD8 alpha

<221> CDS

<222> (1)...(708)

<400> 29

atg gcc tta cca gtg acc gcc ttg ctc ctg ccg ctg gcc ttg ctg ctc	48
Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu	
1 5 10 15	
cac gcc gcc agg ccg agc cag ttc cgg gtg tcg ccg ctg gat cgg acc	96
His Ala Ala Arg Pro Ser Gln Phe Arg Val Ser Pro Leu Asp Arg Thr	
20 25 30	
tgg aac ctg ggc gag aca gtg gag ctg aag tgc cag gtg ctg ctg tcc	144
Trp Asn Leu Gly Glu Thr Val Glu Leu Lys Cys Gln Val Leu Leu Ser	
35 40 45	
aac ccg acg tcg ggc tgc tcg tgg ctc ttc cag ccg cgc ggc gcc gcc	192
Asn Pro Thr Ser Gly Cys Ser Trp Leu Phe Gln Pro Arg Gly Ala Ala	
50 55 60	
gcc agt ccc acc ttc ctc cta tac ctc tcc caa aac aag ccc aag gcg	240
Ala Ser Pro Thr Phe Leu Leu Tyr Leu Ser Gln Asn Lys Pro Lys Ala	
65 70 75 80	
gcc gag ggg ctg gac acc cag cgg ttc tcg ggc aag agg ttg ggg gac	288
Ala Glu Gly Leu Asp Thr Gln Arg Phe Ser Gly Lys Arg Leu Gly Asp	
85 90 95	
acc ttc gtc ctc acc ctg agc gac ttc cgc cga gag aac gag ggc tac	336
Thr Phe Val Leu Thr Leu Ser Asp Phe Arg Arg Glu Asn Glu Gly Tyr	
100 105 110	
tat ttc tgc tcg gcc ctg agc aac tcc atc atg tac ttc agc cac ttc	384
Tyr Phe Cys Ser Ala Leu Ser Asn Ser Ile Met Tyr Phe Ser His Phe	
115 120 125	
gtg ccg gtc ttc ctg cca gcg aag ccc acc acg acg cca gcg ccg cga	432
Val Pro Val Phe Leu Pro Ala Lys Pro Thr Thr Thr Pro Ala Pro Arg	
130 135 140	
cca cca aca ccg gcg ccc acc atc gcg tcg cag ccc ctg tcc ctg cgc	480
Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg	
145 150 155 160	
cca gag gcg tgc cgg cca gcg gcg ggg ggc gca gtg cac acg agg ggg	528
Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His Thr Arg Gly	
165 170 175	
ctg gac ttc gcc tgt gat atc tac atc tgg gcg ccc ttg gcc ggg act	576
Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr	
180 185 190	
tgt ggg gtc ctt ctc ctg tca ctg gtt atc acc ctt tac tgc aac cac	624
Cys Gly Val Leu Leu Leu Ser Leu Val Ile Thr Leu Tyr Cys Asn His	
195 200 205	
agg aac cga aga cgt gtt tgc aaa tgt ccc cgg cct gtg gtc aaa tcg	672
Arg Asn Arg Arg Arg Val Cys Lys Cys Pro Arg Pro Val Val Lys Ser	
210 215 220	

gga gac aag ccc agc ctt tcg gcg aga tac gtc taa
 Gly Asp Lys Pro Ser Leu Ser Ala Arg Tyr Val *
 225 230 235

708

<210> 30
 <211> 235
 <212> PRT
 <213> Homo sapien

<400> 30
 Met Ala Leu Pro Val Thr Ala Leu Leu Leu Pro Leu Ala Leu Leu Leu
 1 5 10 15
 His Ala Ala Arg Pro Ser Gln Phe Arg Val Ser Pro Leu Asp Arg Thr
 20 25 30
 Trp Asn Leu Gly Glu Thr Val Glu Leu Lys Cys Gln Val Leu Leu Ser
 35 40 45
 Asn Pro Thr Ser Gly Cys Ser Trp Leu Phe Gln Pro Arg Gly Ala Ala
 50 55 60
 Ala Ser Pro Thr Phe Leu Tyr Leu Ser Gln Asn Lys Pro Lys Ala
 65 70 75 80
 Ala Glu Gly Leu Asp Thr Gln Arg Phe Ser Gly Lys Arg Leu Gly Asp
 85 90 95
 Thr Phe Val Leu Thr Leu Ser Asp Phe Arg Arg Glu Asn Glu Gly Tyr
 100 105 110
 Tyr Phe Cys Ser Ala Leu Ser Asn Ser Ile Met Tyr Phe Ser His Phe
 115 120 125
 Val Pro Val Phe Leu Pro Ala Lys Pro Thr Thr Thr Pro Ala Pro Arg
 130 135 140
 Pro Pro Thr Pro Ala Pro Thr Ile Ala Ser Gln Pro Leu Ser Leu Arg
 145 150 155 160
 Pro Glu Ala Cys Arg Pro Ala Ala Gly Gly Ala Val His Thr Arg Gly
 165 170 175
 Leu Asp Phe Ala Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Thr
 180 185 190
 Cys Gly Val Leu Leu Leu Ser Leu Val Ile Thr Leu Tyr Cys Asn His
 195 200 205
 Arg Asn Arg Arg Arg Val Cys Lys Cys Pro Arg Pro Val Val Lys Ser
 210 215 220
 Gly Asp Lys Pro Ser Leu Ser Ala Arg Tyr Val
 225 230 235

<210> 31
 <211> 744
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Murine CD8 alpha

<221> CDS
 <222> (1)...(744)

<400> 31
 atg gcc tca ccg ttg acc cgc ttt ctg tcg ctg aac ctg ctg ctg ctg 48
 Met Ala Ser Pro Leu Thr Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu
 1 5 10 15

ggt gag tcg att atc ctg ggg agt gga gaa gct aag cca cag gca ccc	96
Gly Glu Ser Ile Ile Leu Gly Ser Gly Glu Ala Lys Pro Gln Ala Pro	
20 25 30	
gaa ctc cga atc ttt cca aag aaa atg gac gcc gaa ctt ggt cag aag	144
Glu Leu Arg Ile Phe Pro Lys Lys Met Asp Ala Glu Leu Gly Gln Lys	
35 40 45	
gtg gac ctg gta tgt gaa gtg ttg ggg tcc gtt tcg caa gga tgc tct	192
Val Asp Leu Val Cys Glu Val Leu Gly Ser Val Ser Gln Gly Cys Ser	
50 55 60	
tgg ctc ttc cag aac tcc agc tcc aaa ctc ccc cag ccc acc ttc gtt	240
Trp Leu Phe Gln Asn Ser Ser Ser Lys Leu Pro Gln Pro Thr Phe Val	
65 70 75 80	
gtc tat atg gct tca tcc cac aac aag ata acg tgg gac gag aag ctg	288
Val Tyr Met Ala Ser Ser His Asn Lys Ile Thr Trp Asp Glu Lys Leu	
85 90 95	
aat tcg tcg aaa ctg ttt tct gcc atg agg gac acg aat aat aag tac	336
Asn Ser Ser Lys Leu Phe Ser Ala Met Arg Asp Thr Asn Asn Lys Tyr	
100 105 110	
gtt ctc acc ctg aac aag ttc agc aag gaa aac gaa ggc tac tat ttc	384
Val Leu Thr Leu Asn Lys Phe Ser Lys Glu Asn Glu Gly Tyr Tyr Phe	
115 120 125	
tgc tca gtc atc agc aac tcg gtg atg tac ttc agt tct gtc gtg cca	432
Cys Ser Val Ile Ser Asn Ser Val Met Tyr Phe Ser Ser Val Val Pro	
130 135 140	
gtc ctt cag aaa gtg aac tct act act acc aag cca gtg ctg cga act	480
Val Leu Gln Lys Val Asn Ser Thr Thr Thr Lys Pro Val Leu Arg Thr	
145 150 155 160	
ccc tca cct gtg cac cct acc ggg aca tct cag ccc cag aga cca gaa	528
Pro Ser Pro Val His Pro Thr Gly Thr Ser Gln Pro Gln Arg Pro Glu	
165 170 175	
gat tgt cgg ccc cgt ggc tca gtg aag ggg acc gga ttg gac ttc gcc	576
Asp Cys Arg Pro Arg Gly Ser Val Lys Gly Thr Gly Leu Asp Phe Ala	
180 185 190	
tgt gat att tac atc tgg gca ccc ttg gcc gga atc tgc gtg gcc ctt	624
Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Ile Cys Val Ala Leu	
195 200 205	
ctg ctg tcc ttg atc atc act ctc atc tgc tac cac agg agc cga aag	672
Leu Leu Ser Leu Ile Ile Thr Leu Ile Cys Tyr His Arg Ser Arg Lys	
210 215 220	
cgt gtt tgc aaa tgt ccc agg ccg cta gtc aga cag gaa ggc aag ccc	720
Arg Val Cys Lys Cys Pro Arg Pro Leu Val Arg Gln Glu Gly Lys Pro	
225 230 235 240	
aga cct tca gag aaa att gtg taa	744
Arg Pro Ser Glu Lys Ile Val *	
245	

<210> 32
 <211> 247
 <212> PRT
 <213> Artificial Sequence

<400> 32
 Met Ala Ser Pro Leu Thr Arg Phe Leu Ser Leu Asn Leu Leu Leu Leu
 1 5 10 15
 Gly Glu Ser Ile Ile Leu Gly Ser Gly Glu Ala Lys Pro Gln Ala Pro
 20 25 30
 Glu Leu Arg Ile Phe Pro Lys Lys Met Asp Ala Glu Leu Gly Gln Lys
 35 40 45
 Val Asp Leu Val Cys Glu Val Leu Gly Ser Val Ser Gln Gly Cys Ser
 50 55 60
 Trp Leu Phe Gln Asn Ser Ser Ser Lys Leu Pro Gln Pro Thr Phe Val
 65 70 75 80
 Val Tyr Met Ala Ser Ser His Asn Lys Ile Thr Trp Asp Glu Lys Leu
 85 90 95
 Asn Ser Ser Lys Leu Phe Ser Ala Met Arg Asp Thr Asn Asn Lys Tyr
 100 105 110
 Val Leu Thr Leu Asn Lys Phe Ser Lys Glu Asn Glu Gly Tyr Tyr Phe
 115 120 125
 Cys Ser Val Ile Ser Asn Ser Val Met Tyr Phe Ser Ser Val Val Pro
 130 135 140
 Val Leu Gln Lys Val Asn Ser Thr Thr Thr Lys Pro Val Leu Arg Thr
 145 150 155 160
 Pro Ser Pro Val His Pro Thr Gly Thr Ser Gln Pro Gln Arg Pro Glu
 165 170 175
 Asp Cys Arg Pro Arg Gly Ser Val Lys Gly Thr Gly Leu Asp Phe Ala
 180 185 190
 Cys Asp Ile Tyr Ile Trp Ala Pro Leu Ala Gly Ile Cys Val Ala Leu
 195 200 205
 Leu Leu Ser Leu Ile Ile Thr Leu Ile Cys Tyr His Arg Ser Arg Lys
 210 215 220
 Arg Val Cys Lys Cys Pro Arg Pro Leu Val Arg Gln Glu Gly Lys Pro
 225 230 235 240
 Arg Pro Ser Glu Lys Ile Val
 245